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Center for Coastal Resources Management

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Virginia Wetlands Report



Volume 21, Issue 2

A Biannual Publication Focused on Virginia Wetland Issues and Training

Fall 2006

Tools of the Tidal Shoreline Management Trade

“Tools” and “toolbox” are terms referring to a collection of products and resources that make our jobs easier and enhance our capabilities. Coastal resource managers have a variety of tools available to support informed decision-making and assist with public education. Traditional tools for the review of shoreline development projects include topographic maps, nautical charts, engineering manuals and official guidelines. Public education has been provided through brochures and pamphlets explaining why laws are necessary and what citizens need to do to comply.

The availability of electronic tools has been increasing lately to replace traditional paper documents and to improve public access to a variety of information. Many local governments now maintain tax and zoning maps on the Internet. In the tidal shoreline management arena, new tools have been developed to inventory shoreline and aquatic resources and forecast future conditions based on monitoring information. Electronic permit applications are now available and scanned permit records are starting to replace paper records.

Yet finding the time to learn how to interpret and apply these sophisticated tools can be challenging, especially if the user is not experienced with basic navigation of digital records or map and aerial photograph interpretation. The purpose of this edition of the Virginia Wetlands Report and the upcoming fall workshop is to increase awareness and familiarity with a variety of new tools produced by the Center for Coastal Resources Management (CCRM) and other programs at the Virginia Institute of Marine Science (VIMS).

Many of these tools combine Geographic Information System (GIS) technology with digital aerial photographs and the power of the Internet. They are accessible from desktop computers with high-speed Internet access, but GIS software is not required. Some present static maps while others are interactive and allow the user to view different data layers alone or in combination.

The CCRM Comprehensive Coastal Inventory has produced several GIS tools for the tidal shoreline management trade. **Shoreline Situation Reports** have been generated for individual localities. Collectively, the data contributes to the generation of the Virginia Chesapeake Bay Shoreline Inventory. This inventory collects and reports conditions along tidal shorelines using hand-held global positioning systems (GPS) and GIS mapping technology. It includes data describing riparian land use, bank condition, presence of wetlands and beaches, shoreline stability, and shoreline access structures including private piers and boat ramps. The data can assist with site reviews for permit applications and help evaluate applications for alternative protection strategies. While the inventory is not complete for Virginia, CCI is working toward securing new funds to allow this effort to continue.

The **Shoreline Managers’ Assessment Kit (SMAK)** uses interactive mapping software to compile, query, and print maps. Among other things SMAK includes the current Shoreline Situation Reports, where available, as well as earlier surveys of shoreline condition. Marine managed areas, wetlands, SAV and subaqueous bottom habitat can be illustrated by clicking on the appropriate icon in the list of data layers. *(continued on page 2)*

Workshop Announcement



*Tools of the Tidal Shoreline
Management Trade*

*Friday, October 13, 2006
at VIMS*

*See inside for information &
registration*

**Center for
Coastal
Resources
Management**

Virginia Institute of Marine Science

Quick Reference - Tools for the Tidal Shoreline Management Trade

Shoreline Situation Reports – Results of field inventories include land use, bank and erosion conditions, existing erosion control structures, piers and boat ramps on a county by county basis. ccrm.vims.edu/shoreline_situation_rpts

Shoreline Manager's Assessment Kit (SMAK) – SMAK is an interactive tool using GIS shoreline and land use features to assist with shoreline management. ccrm.vims.edu/SMAK_intro

Wetlands Mitigation-Restoration Targeting Tool – Assists with the selection of appropriate sites for wetland creation. ccrm.vims.edu/wet_targeting/index

Marina Siting Suitability – Includes GIS data, government specifications and scientific information to identify appropriate sites for future marinas. ccrm.vims.edu/marinasinging

York Watershed Tidal Wetlands Viewer – Baseline data for identifying wetland restoration opportunities, evaluating appropriate mitigation ratios, and determining cumulative impacts within the York River watershed. ccrm.vims.edu/disclaimer_Yorktidalwetlands

James River & York River Map Gallery - This website was developed to increase distribution of mapped products originally released between 1992 & 1999 with a very limited distribution. ccrm.vims.edu/gallery

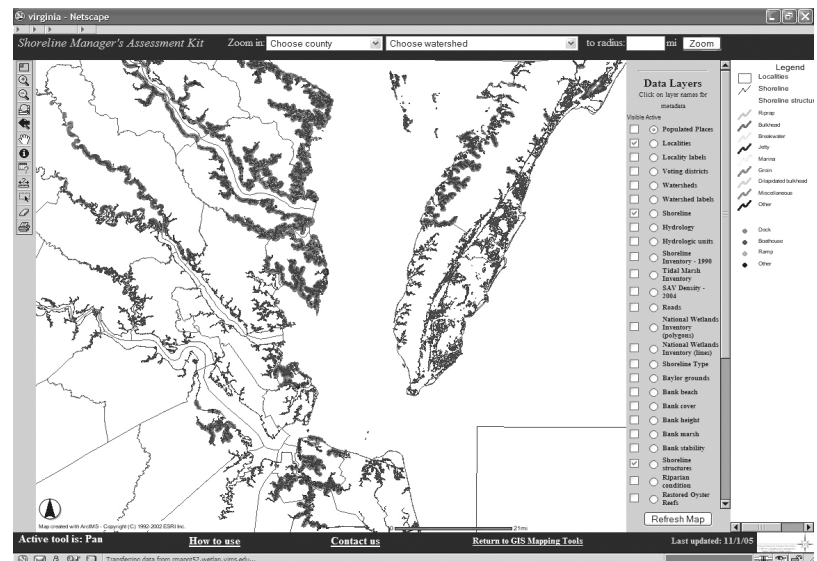
VIMS Shoreline Permit Application Reports – Permit application documents, site photographs and VIMS Reports. www.vims.edu/ccrm/wetlands/newpermits

Locality Dune Inventory & Evolution Reports – Historic aerial imagery and maps that depict shoreline change on a county by county basis for selected localities. www.vims.edu/physical/research/shoreline

Submerged Aquatic Vegetation (SAV) Inventory – Recent and historical SAV Monitoring Project Reports, plus additional background information and related links. www.vims.edu/bio/sav/

(continued from page 1)

The **Wetlands Mitigation-Restoration Targeting Tool** was developed to assist with the selection of sites suitable for the restoration or mitigation of wetlands. Wetlands mitigation continues to be in the forefront of environmental policy making and management within the Commonwealth. As wetland resources are impacted the need to quickly find and compensate for those losses in a developing landscape is complex. This tool uses a hierarchical model for selecting potential sites based on the physical requirements for mitigation combined with land use. The tool is intended to help filter through a large landscape and pinpoint possible target areas that may be considered.



Example of map and some of the data layers available with the Shoreline Manager's Assessment Kit.

Other GIS tools not described here include Marina Siting Suitability, Elizabeth River Environmental Atlas, York Watershed Tidal Wetlands Viewer, James River and York River Map Gallery, & Oil Spill Cleanup and Response (OSCAR). GIS databases are also available for interested parties capable of processing them.

CCRM also maintains an electronic archive of permit records and VIMS shoreline permit application reports. The Wetlands Board/Chesapeake Bay Preservation Act discussion forum is another type of tool that supports effective communication and interagency coordination. All of these CCRM tools can be found at this web site ccrm.vims.edu.

Other VIMS program areas have also produced useful tools for tidal shorelines. The VIMS Shoreline Studies Program recently completed a series of **Dune Inventory and Dune Evolution Reports** on a county by county basis. This research and the on-line tools include a series of digitized aerial photographs that compare shoreline locations and changes from 1937 to the present. The web site link is www.vims.edu/physical/research/shoreline.

The **Submerged Aquatic Vegetation (SAV) Inventory** is an on-line tool developed by the VIMS SAV program that allows for easy comparisons between annual surveys to consider the long-term viability of this important habitat, rather than considering only the actual presence of SAV in any given year. The web site link is www.vims.edu/bio/sav/.

WORKSHOP ANNOUNCEMENT

Tools of the Tidal Shoreline Management Trade Friday, October 13, 2006



Virginia Institute of Marine Science

8:00 am - 9:00 am Registration

9:00 am - 4:00 pm Workshop

ccrm.vims.edu/fall2006



This workshop will provide opportunities to learn more about and actually use the various tools described in this newsletter. The morning session will provide a general overview and introduction to the tools. Actual shoreline situations and case studies will be presented to illustrate how the tools can be applied to support informed decision making. Attendees will select one of four sessions in the afternoon, which will include short local field trips (except for GIS Tools). There is a limited number of seats available for some of the sessions, so register early!

(1) **Wetlands Board “Boot Camp”** This session is for local Wetland Board members and staff who have never had formal training and those who would like a refresher on the basics. Topics will include wetland ecology, jurisdictions and roles, shoreline structures, project evaluation, cumulative impacts, & no net loss. A field trip to the VIMS Teaching Marsh will be included.

(2) **GIS Tools** A limited number of seats will be available in the new VIMS computer lab. Participants will work through real life exercises that simulate the types of questions routinely encountered during the permit application review process. Trained staff will be on hand to provide assistance.

(3) **Beaches & Dunes** This session will provide in-depth evaluation of recent VIMS research and inventories, including interaction with new on-line tools and recent video footage of beaches. Different shoreline stabilization approaches and other challenges unique to beach and dune shorelines will also be discussed. A field trip will be conducted to a local beach and breakwater project.

(4) **Living Shorelines** This session will illustrate how the various tools can be used to determine if particular sites are suitable to use planted marshes and beaches for erosion protection and how to predict if structures should be included. A field trip to Living Shoreline projects at VIMS will be included.

Workshop Registration

Name _____

Affiliation _____

Address _____

Phone _____

Fax _____

Email _____

Afternoon Breakout Sessions

You will attend only one session. Enter “1” for first choice, “2” for second choice in case the preferred session is full.

(1) Wetlands Board “Boot Camp” _____

(2) GIS Tools (limited seating) _____

(3) Beaches & Dunes _____

(4) Living Shorelines _____

Registration - \$25 (includes lunch). Please make checks payable to: **VIMS Tidal Wetlands Workshop**

If paying by VISA/Mastercard, please email (dawnf@vims.edu) or fax (804-684-7179) registration form AND call Dawn at 804-684-7380 with credit card information.

Deadline for payment & registration: October 6, 2006

Please mail form and registration payment to

Tidal Wetlands Workshop/CCRM

P.O. Box 1346

Gloucester Pt., VA 23062

Tidal Wetlands News & Events

The Virginia Wetlands Report is a biannual publication of the Wetlands Program at the Virginia Institute of Marine Science of the College of William and Mary. To subscribe to this newsletter (hardcopy or e-newsletter), please contact:

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Wetlands Board/Chesapeake Bay Preservation Act Discussion Forum. This CCRM hosted forum was recently expanded to allow Wetlands and Chesapeake Bay Preservation Act board members and local government staff from across coastal Virginia to exchange questions, ideas or general comments regarding their experiences with tidal shoreline regulations. For more information, visit ccrm.vims.edu/wetlands_forum/wetlands_forum.

Shoreline Management Technical Assistance Toolbox, NOAA Office of Ocean & Coastal Resource Management. Centralized access to planning & policy tools, plus information about alternative stabilization techniques & the economics of shoreline management. coastalmanagement.noaa.gov/initiatives/shoreline

Delmarva Wetlands Conference, October 11-12, 2006, Dover, DE. This conference will bring together managers & scientists to formulate pathways for restoring & protecting wetland resources on the Delmarva Peninsula through integration of existing programs, development and implementation of conservation strategies and focused education & outreach efforts. Call 302-739-9939 for registration information.

Virginia Association of Wetland Professionals Annual Meeting, October 20, 2006, Williamsburg, VA. This meeting will focus on regulatory updates. Annual election of new board officers will also take place. For more information or to join this organization, visit their web site www.vawp.org.

Living Shorelines Summit, December 6-7, 2006, Williamsburg, VA. Summit topics will include decision-making tools, current status of research, site suitability & design methods, plus education & outreach materials. For details and registration, see www.vims.edu/livingshorelines.

Association of State Wetlands Managers, Inc., August 2007. The ASWM will be hosting its 2007 annual meeting next year in Williamsburg, VA. For more information about this organization and for future posting of the meeting agenda, see www.aswm.org/index-alt.

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